Principal Investigator Microgravity Services (PIMS)

Glenn Research Center

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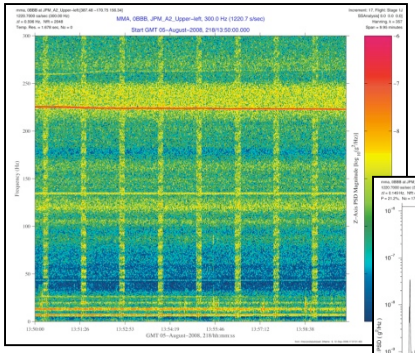
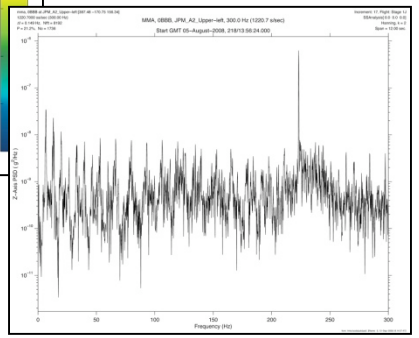
Engineering Team: ZIN Technologies, Inc.



SAMS acceleration data



PIMS Data Analysis – isolate event

Objective:

- Provide acceleration measurement data to Principal investigators who conduct scientific research on board the International Space Station.
- The SAMS acceleration measurement system provides the raw data that PIMS uses to provide analysis to the Principal Investigators. SAMS measures the acceleration environment in the 0.01 to 400 Hz range for payloads.

Relevance/Impact:

- SAMS will measure the acceleration environment for research payloads and other customers on board the ISS.

Development Approach:

- PIMS was developed to provide researchers with a resource to request the microgravity environment during their payload operations on board the ISS. PIMS can provide researchers with detailed experiment specific analysis of the environment.

Current On Orbit Configuration:

- SAMS is currently on board the ISS with a mass of 10.44 kg, and a volume of 0.013 cubic meters.
- SAMS has 2 sensors (SE-F02, SE-F03) located in Express Rack 1, Drawer 1. SAMS has 2 sensors (SE-F04, SE-F05) located in Express Rack 1, Drawer 2. SAMS has 1 sensor (SE-F08) located in the working volume of the Microgravity Science Glovebox (MSG).

Future Development:

- The PIMS service currently uses the SAMS Triaxial Sensor Head – Ethernet Standalone (TSH-ES) units to collect data on board the ISS. SAMS has two TSH-ES's, one for each of the new payloads: Combustion Integrated Rack (CIR), and the Fluid Integrated Rack (FIR). The SAMS project is currently preparing the MSG and CIR TSH-ES's for launch on Flight ULF-2.

ISS Resource Requirements

Accommodation (carrier)	Express rack 4
Upmass (kg) (w/o packing factor)	10.44
Volume (m^3) (w/o packing factor)	0.013
Power (kw) (peak)	0.07
Crew Time (hrs) (installation/operations)	.17 h (10 minutes to active)
Launch/Increment	6A/Inc 1 (SAMS on orbit)

Revision Date: 08/21/2009

Project Life Cycle Schedule

Milestones	SCR	RDR	PDR	CDR	VRR	Safety	FHA	Launch	Ops	Return	Final Report
Actual/ Baseline	N/A	N/A	12/1995	9/1997	1/2000	9/2000	12/2000	6A Apr 2001	Inc. 1 =>	N/A	N/A
Documentation	Website:http://spaceflightsystems.grc.nasa.gov/Advanced/ISSResearch/Acceleration/PIMS eRoom:http://collaboration.grc.nasa.gov/eRoom/NASAc1f1/ISSHumanResearchProjectsOffice				SRD: EDMP:http://edmp.grc.nasa.gov			Project Plan: SEMP:			